INTRODUCTION

I.1 Background

In its *Business Plan*[1] adopted in June 2000, the California High-Speed Rail Authority (Authority) recommended that the state proceed with implementation of a statewide high-speed train system by initiating the formal state and federal environmental review process through preparation of a state program-level Environmental Impact Report (EIR) and a federal Tier I Environmental Impact Statement (EIS) or Program EIR/EIS. The Authority is the state lead agency for the California Environmental Quality Act (CEQA), and the Federal Railroad Administration (FRA) is the federal lead agency for the National Environmental Policy Act (NEPA). As part of the Program EIR/EIS, a number of project alternatives will be evaluated including a High-Speed Train Alternative. Within the High-Speed Train Alternative, there are a range of high-speed train alignments and station locations to be considered. To carry out the engineering and environmental work needed for the program environmental process, the state network has been divided into five regions: Bay Area-Merced, Sacramento-Bakersfield, Bakersfield-Los Angeles, Los Angeles-San Diego via the Inland Empire, and Los Angeles-Orange County-San Diego (see Figure I-1).

Figure I-1: High-Speed Train Corridors

I.2 Purpose

The purpose of the High-Speed Train Alignments/Stations Screening Evaluation is to consider all reasonable and practical options within all corridors being investigated by the Authority at a consistent level of analysis. This initial alignment and station evaluation has been accomplished through the following key activities:

- Review of past alignment and station options identified in previous studies.
- Throughout the environmental scoping process, identify alignment and station options not previously evaluated.

[1] California High-Speed Rail Authority. *Building a High-Speed Train System for California, Final Business Plan*. June 2000.

- Evaluation of alignment and station options using standardized engineering, environmental, and financial criteria and evaluation methodologies.
- Identification of the alignment and station options ability to attain defined objectives.

Reports were prepared in each of the five regions documenting the results of the High-Speed Train Alignments/Stations Screening Evaluation. The technical data from these reports, combined with public and agency input has provided the Authority the necessary information to direct further studies for the Program EIR/EIS on those alignments, and station locations, and high-speed train systems which represent a reasonable range of alternatives which could attain the following objectives established by the Authority:

- Maximize Ridership/Revenue Potential
- Maximize Connectivity and Accessibility
- Minimize Operating and Capital Costs
- Maximize Compatibility with Existing and Planned Development
- Minimize Impacts to Natural Resources
- Minimize Impacts to Social and Economic Resources
- Minimize Impacts to Cultural Resources
- Maximize Avoidance of Areas with Geological and Soils Constraints
- Maximize Avoidance of Areas with Potential Hazardous Materials

The EIR/EIS must review a range of reasonable alternatives which could feasibly respond to the purpose and need for the project, or stated another way, could feasibly accomplish most of the project objectives while reducing expected environmental impacts. Public scoping meetings and consultation with other public agencies have helped the Authority to identify the potential environmental impacts to be analyzed in the EIR/EIS and to identify a broad range of potential alternatives to the proposed system.

Following the scoping process, screening is the process by which the Authority and the FRA has determined which alternatives should be removed from further consideration and which alternatives will receive detailed review in the EIR/EIS. This process involves reviewing the broad range of alternatives which were identified and reducing the alternatives to those that represent a range of the most reasonable and feasible means of responding to the objectives, purpose and need for the project. These are the alternatives which will receive detailed consideration in the EIR/EIS. This process also involves removing from further consideration those alternatives which, due to significant technical, environmental, and/or economic factors, would not serve to reasonably and feasibly meet the objectives, purpose and need for the proposed high speed rail system. This screening report serves to document the significant reasons for removing certain alternatives from further consideration. There are at least two viable options for the entire system, except in those few instances where clear and documented data was available to limit the options to a single alignment. All of the screening recommendations were developed with input from both the Federal Railroad Administration and the Authority's legal counsel.

I.3 Approval Process

Preliminary results from the High-Speed Train Alignments/Stations Screening Evaluation for four of the regional corridors (all except the Sacramento-Bakersfield region) were presented to the Authority at the August Board Meeting. Staff Recommendations for screening on these four corridors were presented at the September Board Meeting along with the preliminary results of the Screening Evaluation for the Sacramento-Bakersfield region. To review the corridor screening decisions made prior to this screening analysis see the "Confirmation of Previous Decisions" in Appendix A. Also at this meeting, staff recommended that additional work was needed to better identify and refine the alternative mountain crossing routes for the San Jose-Merced and Bakersfield-Sylmar segments, due to the complexities of the mountain crossings.

Subsequently, a tunneling conference summit was arranged to receive technical and practical input regarding all aspects of tunnel design and construction. The leading national and international experts participated and provided valuable information that was used in further refinement of the options. This conference confirmed the objective of minimizing the amount of tunneling required, due to cost, time of construction and potential for delay, and the desirability of crossing of major fault zones at grade. It also confirmed the assumption that the unit cost for tunneling would increase dramatically for tunnels exceeding six-miles in length.

Because of the wide range of alignment and profile options through the mountain crossings, the staff recommended further identification and analysis of potential alignment alternatives. In addition, the alignment evaluation needed to be verified, based on the updated tunneling assumptions. Recognizing the limitations on alternative analysis through conventional means, staff engaged the Quantm systems state of the art methodology to evaluate millions of alignments through the mountains. This allowed the staff to verify the viability of alignments evaluated and to optimize the location of those alignments particularly with respect to tunnel and bridge costs and earthwork.

In November, while further alignment studies were undertaken on the mountain crossings, the Board took action on the staff recommendations, for alignments, stations locations and high-speed train systems for further investigation for the Bay Area-Merced; Los Angeles-Bakersfield; Los Angeles-Inland Empire-San Diego; and Los Angeles-Orange County-San Diego corridors, excluding the mountain crossings. For the Sacramento-Bakersfield corridor, staff presented recommendations for alignments and station locations for further investigation.

As a result of additional information obtained from the tunneling summit and alignment optimization, staff recommendations for the mountain crossings were revised and presented to the Board at the January meeting. At the January Board Meeting, the Authority completed an initial screening of alternatives by taking action on revisions to the staff recommendations on alignments, and station locations for the following segments: Los Angeles Union Station-to-LAX, Sylmar-to-Bakersfield (the Tehachapi Mountain crossing), Merced-to-San Jose (Coastal Range Crossing), Sacramento-Bakersfield, and Mira Mesa-to-San Diego. During the screening process the Authority has received public and agency comments which can be found in Appendix B of this report.

I.4 Organization of This Report

The remainder of this report is divided into the following sections:

1. Bay Area-to-Merced Corridor
2. Sacramento-to-Bakersfield Corridor
3. Bakersfield-to-Los Angeles Corridor
4. Los Angeles-Riverside-San Diego Corridor
5. Los Angeles-Orange County-San Diego Corridor
6. Summary of Alignments and Stations for Further Investigation
7. High-Speed Train System Recommendations